

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-11 (canceled)

Claim 12. (new) A self-propelled robot configured for movement over a trackless surface to be treated, the robot comprising:

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a power supply;

a traction mechanism configured to receive power from the power supply and move the robot over a trackless surface;

a dispense mechanism adapted to controllably deposit a fluent material onto the trackless surface;

a plurality of navigation sensors providing signals for enabling the robot to navigate over the trackless surface;

one or more deposition detectors adapted to detect the presence of the fluent material on the trackless surface and provide signals indicative thereof; and

a control system configured to receive the signals from the navigation sensors and the one or more deposition detectors and operably dependent upon the signals to control the traction and dispense mechanisms.

Claim 13. (new) The robot according to claim 12, wherein the navigation sensors include collision sensors comprising at least one lateral displacement sensor arranged on a peripheral sensor ring to provide 360° collision detection, one or more vertical displacement sensors, or both.

Claim 14. (new) The robot according to claim 12, wherein the detectors comprise one or more detection sensors arranged to detect an edge portion of a previously deposited product.

Claim 15. (new) The robot according to claim 12, wherein the deposition detectors include one or more radiation sources, radiation detectors, moisture detectors, reflectivity meters or conductivity meters.

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Claim 16. (new) The robot according to claim 12, wherein the control system comprises a hierarchical architecture and includes one or more microprocessor controllers or microcontrollers for controlling higher-level functions and providing higher-level instructions; and a plurality of lower-level function modules adapted to receive signals from the navigation sensors and deposition detectors and having processors to provide control signals in response thereto.

Claim 17. (new) The robot according to claim 16, wherein signals associated with the traction and dispense mechanisms are issued to a traction mechanism controller and to a dispense mechanism controller, via a manifold, and configured to receive signal inputs from the microprocessors or microcontrollers and from the lower-level function modules.

Claim 18. (new) The robot according to claim 16, wherein the lower-level function module processors include neural network functionality to provide behavioral characteristics appropriate to a chosen task of the robot, wherein the behavioral characteristics provided by the processors are moderated by a group of generic moderators providing arbitration between control instructions from the various processors.

Claim 19. (new) The robot according to claim 18, wherein the lower-level function modules comprise analog neural networks which provide functions comprising edge follow

and dispense control, cliff sensing, collision detection, speed reduction and random movement.

Claim 20. (new) The robot according to claim 12, wherein the traction mechanism comprises left and right, coaxially disposed drive wheels having corresponding motors.

Claim 21. (new) The robot according to claim 16, wherein higher-level functions comprise robot impact recognition, room size estimation, clutter level determination and battery monitoring.

Claim 22. (new) A method comprising controllably depositing a fluent material onto floors, carpets and other floor coverings using the robot as set forth in claim 12, wherein the robot is autonomous, self-propelled, deposition-sensing and deposition rate-controlling.

Claim 23. (new) The method according to claim 22, wherein the deposited material comprises a carpet cleaning composition, an odorization or deodorization composition, a dust mite control composition, an anti-microbial composition, a hard surface cleaning composition, or mixtures thereof, which can be applied simultaneously or successively.

Claim 24. (new) The method according to claim 22, wherein the deposited material includes a marker, the presence of which can be detected to provide detection of the extent of treatment of the deposited material.
